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(54) Broadband fixed-radius slot antenna arrangement

(57) A fixed radius tapered slot antenna (100) formed a dielectric substrate (10) with an electrically conductive layer (14) on one side. The slot is defined by two hemispherical shaped elements (12, 13). A common base (15) is also formed on the conductive layer behind the hemispherical shaped members. Preferably, a microstrip feedline (16) is formed on the side of the dielectric substrate to electromagnetically couple to the balun (18) adjacent the narrow end of the tapered slot. A contiguous array of fixed radius tapered slot antennas (100) can be made on the same conductive layer of a dielectric layer. A reflector can be integrated with the antenna array to improve the radiation pattern. The fixed radius tapered slot antenna has been proven to outperform an exponentially tapered slot or Vivaldi antenna.

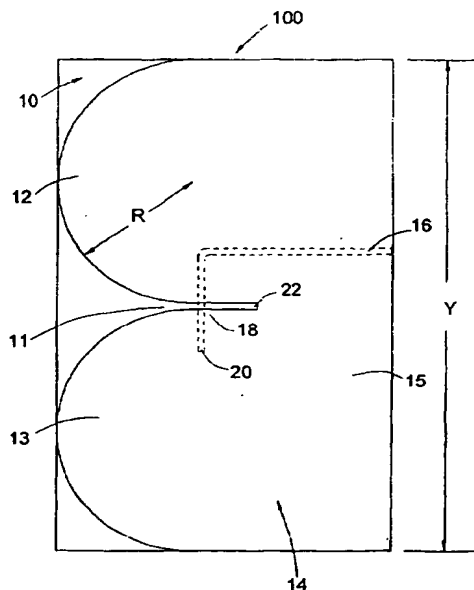


FIG.3

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EUROPEAN SEARCH REPORT

Application Number
EP 99 40 2781

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	SCHAUBERT, D.H.: "Endfire slot antennas" JOURNÉES INTERNATIONALES DE NICE SUR LES ANTENNES, 13 - 15 November 1990, pages 253-265, XP002174036 Nice, France * figures 2, 12, 15; tables 1, 2 * * section 2 *	1-5, 12-15	H01Q13/08 H01Q21/08 H01Q1/24
A	---	6-11	
A	EP 0 434 282 A (HUGHES AIRCRAFT CO) 26 June 1991 (1991-06-26) * column 4, line 7-18; figures 1, 2, 6 *	3, 4	
X	GERMAN F ET AL: "ANALYSIS OF FLARED SLOT ANTENNAS FOR PHASED ARRAY APPLICATIONS" PROCEEDINGS OF THE ANTENNAS AND PROPAGATION SOCIETY INTERNATIONAL SYMPOSIUM (APSYS). ANN ARBOR, JUNE 28 - JULY 2, 1993, NEW YORK, IEEE, US, vol. 3, 28 June 1993 (1993-06-28), pages 1600-1603, XP000452575 * the whole document *	1, 15	
	---		TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	FR 1 127 983 A (SADIR-CARPENTIER) 28 December 1956 (1956-12-28) * figure 4 *	1, 5, 15	H01Q
P, X	MARINO R A: "A NOVEL TAPERED SLOT PCS ANTENNA ARRAY AND MODEL" MICROWAVE JOURNAL, HORIZON HOUSE, DEDHAM, US, vol. 42, no. 1, January 1999 (1999-01), pages 90, 93, 95-96, 98, 100, XP000902505 ISSN: 0192-6225 * the whole document *	1-15	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 7 August 2001	Examiner Van Dooren, G
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 40 2781

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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07-08-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0434282 A	26-06-1991	US 5023623 A	11-06-1991
		CA 2029762 C	01-08-1995
		DE 69021030 D	24-08-1995
		DE 69021030 T	04-04-1996
		ES 2074549 T	16-09-1995
		GR 3017796 T	31-01-1996
		IL 96333 A	26-08-1994
		JP 2618092 B	11-06-1997
		JP 4117803 A	17-04-1992
		NO 177079 B	03-04-1995
		TR 26142 A	15-02-1995
FR 1127983 A	28-12-1956	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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